IN THE CLAIMS:

Please amend claims 1, 3, 5, 7-12, 17, 19, 20, 24 and 26-28 as follows.

1. (Currently Amended) An image processing device comprising:

an image pick-up device ~~having a fixed positional relationship with respect to~~ mounted on a measurement object;

an orientation sensor adapted to measure ~~the~~ an orientation ~~at an image pick-up visual point~~ of said image pick-up device;

a storage unit ~~adapted to store~~ that stores calculation information to calculate ~~the~~ an orientation of said measurement object or ~~the~~ a position and orientation of said measurement object on the basis of a measured valve ~~an~~ output from said orientation sensor;

a prediction position calculation unit ~~adapted to calculate~~ that calculates a prediction position of an index in an image picked-up by said image pick-up device on the basis of the measured value ~~orientation~~;

an extracting ~~a target image setting~~ unit ~~adapted to extract~~ that sets an ~~image~~ area of ~~the index from~~ the picked-up image on the basis of the prediction position of the index, and extracts an image in the set area;

a rotating unit that rotates ~~rotate~~ the extracted image ~~area~~ using a ~~roll~~ rotation angle in a roll direction, according to the measured ~~orientation~~ value, of said image pick-up device, and outputs the rotated image ~~area~~ as a target image;

a detecting unit ~~adapted to detect the~~ that detects a position of ~~said~~ the index in ~~said~~ the target image by performing a template matching process between a template image of ~~said~~ the index and ~~said~~ the target image;

an updating unit ~~adapted to update said~~ that updates the calculation information stored in said storage unit on the basis of [[a]] the detected position of ~~said~~ the index detected by said detecting unit; and

a calculation unit ~~adapted to calculate~~ that calculates the orientation ~~and/or~~ of said measurement object or the position and orientation of said measurement object on the basis of [[a]] the measured value from said orientation sensor and ~~said~~ the calculation information updated by said updating unit.

2. (Cancelled)

3. (Currently Amended): The image processing device according to claim 1, wherein ~~said~~ the calculation information is the correction information to correct for an error in the measured value ~~of the orientation~~ measured by said orientation sensor, and said calculation unit calculates the orientation of said measurement object on the basis of ~~said~~ the measured value and ~~said~~ the correction information.

4. (Cancelled)

5. (Currently Amended) The image processing device according to claim 1, wherein ~~said~~ the calculation information is the correction information to correct for an error in the measured value ~~of the orientation~~ measured by said orientation sensor and ~~the~~ position information of ~~the image pick-up visual point of~~ said image pickup device, and said calculation unit calculates the position and orientation of said measurement object on

the basis of ~~said~~ the measured value, ~~said~~ the correction information and ~~said~~ the position information.

6. (Cancelled)

7. (Currently Amended) The image processing device according to claim 5, wherein said updating unit updates the position information in the two directions except for a depth direction in the camera coordinate system of said image pickup device, even when said detecting unit detects an index of only a single point ~~is detected in said detecting unit~~.

8. (Currently Amended) The image processing device according to claim 3, wherein ~~said~~ the correction information is the information to correct for an error in the azimuth direction among the measured values ~~of the attitude~~ measured by said ~~attitude~~ orientation sensor.

9. (Currently Amended) The image processing device according to claim 1, wherein said updating unit updates ~~said~~ the calculation information on the basis of the detected position of ~~said~~ the index in ~~said~~ the picked-up image.

10. (Currently Amended) The image processing device according to claim 3, wherein said updating unit updates ~~said~~ the calculation information on the basis of a typical value of the updated value of ~~said~~ the calculation information obtained for each index when said detecting unit detects a plurality of indices ~~are detected in said detecting unit~~.

11. (Currently Amended) The image processing device according to claim 3, wherein said updating unit updates ~~said~~ the calculation information on the basis of a dislocation between the prediction position and ~~said~~ the detected position of ~~said~~ the index in ~~said~~ the target image.

12. (Currently Amended) The image processing device according to claim 11, wherein said updating unit updates ~~said~~ the calculation information on the basis of a typical value of ~~said~~ the dislocation obtained for each index when said detecting unit detects a plurality of indices ~~are detected in said detecting unit~~.

13 - 16 (Cancelled)

17. (Currently Amended) The image processing device according to claim 1, wherein said measurement object is an image pick-up visual point of said image pick-up device and said image processing device further comprises a display unit ~~adapted to display said pick-up~~ that displays the pick-up image with ~~the~~ a image in ~~the~~ a virtual space superposed thereon on the basis of the orientation of said image pick-up device or the position and orientation of said image pick-up device calculated by said calculation unit.

18. (Cancelled)

19. (Currently Amended) The image processing device according to claim 1, wherein said measurement object is a visual point of ~~the~~ an observer, and said image processing device further comprises a display unit ~~adapted to display the~~ that displays an

image in ~~the~~ a virtual space drawn on the basis of the orientation or the position and orientation of the observer calculated by said calculation unit on a display screen, while the observer is observing ~~optically transmitting~~ the image in the real space through said display screen ~~observed by the observer~~.

20. (Currently Amended) An image processing device in which ~~the~~ a position of an index in a picked-up image picked up by an image pick-up device is detected by a template matching process employing a template image of ~~said~~ the index, comprising:

an orientation sensor that measures an ~~for measuring the~~ orientation ~~at an image pick-up visual point~~ of said image pick-up device;

a prediction position calculation unit ~~adapted to calculate~~ that calculates a prediction position of the index in an image picked-up by ~~the~~ said image pick-up device on the basis of the measured orientation;

an extracting ~~a target image creating~~ unit ~~adapted to extract~~ that sets an ~~image~~ area of ~~the index from~~ the picked-up image on the basis of the prediction position of the index, and extracts an image in the set area;

a rotating unit that rotates ~~rotate~~ the extracted image ~~area~~ using a ~~roll~~ rotation angle in a roll angle, according to the measured orientation, of said image pick-up device, and outputs the rotated image ~~area~~ as a target image; and

a detecting unit ~~adapted to detect~~ that detects the position of ~~said~~ the index in ~~said~~ the picked-up image by performing [[a]] the template matching process between ~~said~~ the template image and ~~said~~ the target image.

21 - 23 (Cancelled)

24. (Currently Amended) ~~An~~ A computer-implemented image processing method comprising:

an image pick-up step, of picking up an image with an image pick-up device ~~having a fixed positional relationship with respect to~~ mounted on a measurement object;

an orientation measuring step, of measuring ~~the~~ an orientation ~~at an image pick-up visual point~~ of the image pick-up device;

a storage step, of storing calculation information to calculate ~~the~~ an orientation of the measurement object or ~~the~~ a position and orientation of the measurement object on the basis of the measured value measured in said orientation measuring step;

a prediction position calculation step of calculating a prediction position of an index in an image picked-up by said image pick-up step on the basis of the measured ~~orientation~~ value measured in said orientation measuring step;

a target image setting step, of ~~extracting an image area of the index from~~ setting an area of the picked-up image on the basis of the prediction position of the index, extracting an image in the set area rotating the extracted image ~~area~~ using a ~~roll~~ rotation angle in a roll direction, according to the measured ~~orientation~~ value, of the image pick-up device, and outputting the rotated image ~~area~~ as a target image;

a detecting step, of detecting ~~the~~ a position of the index in the target image by performing a template matching process between a template image of the index and the target image;

an updating step, of updating the calculation information stored in said storage step, on the basis of ~~a~~ detected position of the index detected in said detecting step; and

a calculating step, of calculating the orientation ~~and/or~~ of the measurement object or the position and orientation of the measurement object on the basis of ~~a~~ the measured value from said orientation measuring step and the calculation information updated in said updating step.

25. (Cancelled)

26. (Currently Amended) A computer program embodied in a computer-readable medium and comprising computer-executable code for executing the computer-implemented image processing method according to claim 24.

27. (Currently Amended) A computer-readable storage medium storing the computer-executable program code according to claim 26.

28. (Currently Amended) ~~An~~ A computer-implemented image processing method for use with an image processing device in which ~~the~~ a position of an index in a picked-up image picked up by an image pick-up device is detected by a template matching process employing a template image of said index, said method comprising:

an orientation measuring step of measuring the orientation ~~at an image pick-up visual point~~ of the image pick-up device;

a prediction position calculating step of calculating a prediction position of the index in the image picked-up by the image pick-up device on the basis of the measured orientation measured in said orientation measuring step;

a target image creating step of ~~extracting an image area of the index from~~ setting an area of the picked-up image on the basis of the prediction position of the index, extracting an image in the set area rotating the extracted image ~~area~~ using a ~~roll~~ rotation angle in a roll direction, according to the measured orientation, of the image pick-up device, and outputting the rotated image ~~area~~ as a target image; and

a detecting step of detecting the position of the index in the picked-up image by performing [[a]] the template matching process between the template image and the target image.